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# SOME MARYLAND WOODLAND PLANTS FOR SPRING STUDY.

By J. B. S. Norton.

## Part I*

This publication contains some notes on the commoner and more conspicuous trees and shrubs blooming in the spring in Maryland. It is intended to be some aid to classes endeavoring to learn something of the different kinds of plants met with here. It is probably not nearly complete, but may be of some help to beginners who find confusing the larger manuals including the whole flora and plants of many seasons. Some keys to the more conspicuous groups are given and a key to the families. The more important cultivated plants are included as well as the wild ones, and sometimes reference is made to important economic plants outside our State.

Spring time is the natural and usual time for beginning the study of plant species, and to make the work briefer I have excluded some important Maryland species that flower in the summer or fall, but in many cases have referred to them.

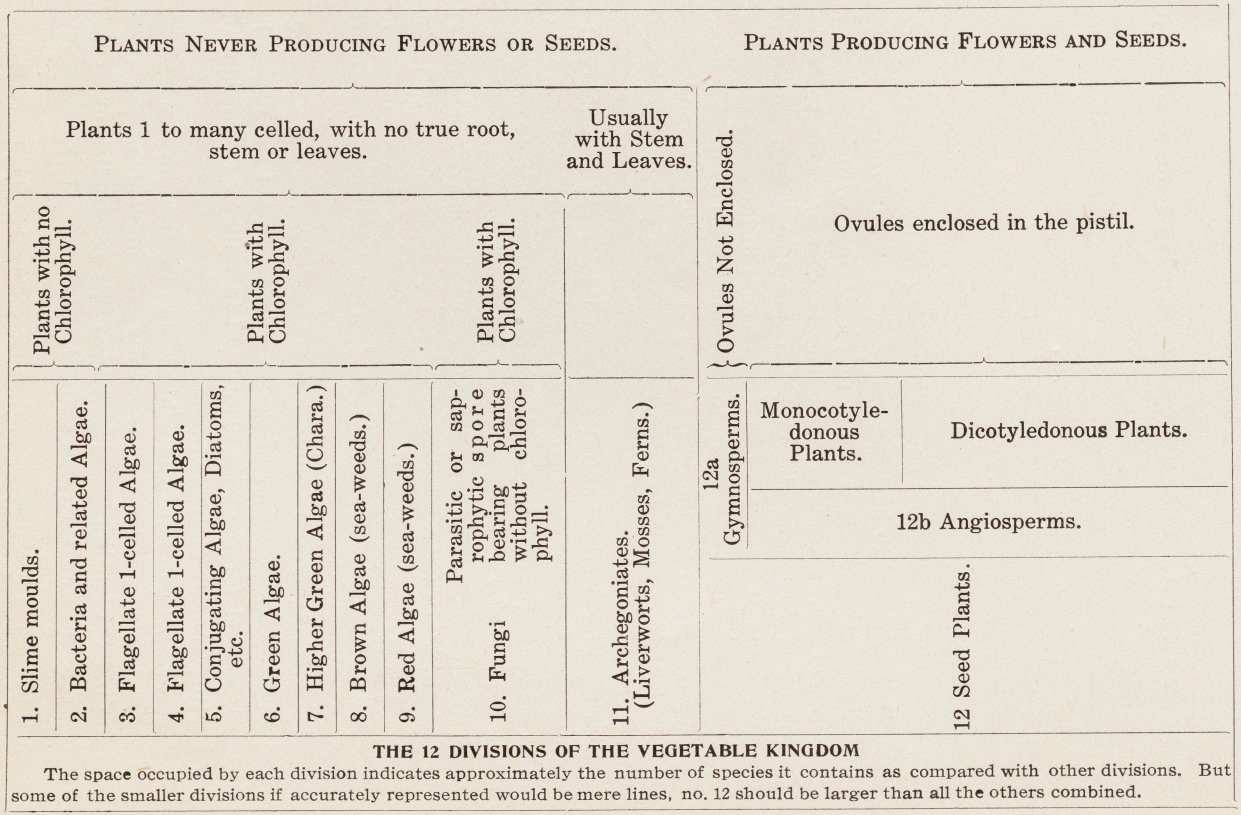
Only the seed plants are discussed, but the diagram (Plate I) will give an idea of the relation of other classes of plants to these. Many hundreds of species of the non-flowering plants occur in Maryland and their study would be just as interesting but more difficult.

The scientific names commonly used are given and I have followed Engler's arrangement of the families and used the names in Britton's Manual for the wild plants and in Bailey's Cyclopedia of Horticulture for the cultivated ones.

The English names of the wild plants cannot be in many cases used with accuracy as different names are applied to the same plant in different localities, and in many cases no English name has ever been given. In such cases the Latin name of the genus is

*It is intended to treat the remainder of the families in a future publication.

## PLATE 1.—OUTLINE OF VEGETABLE KINGDOM.




**THE 12 DIVISIONS OF THE VEGETABLE KINGDOM**

The space occupied by each division indicates approximately the number of species it contains as compared with other divisions. But some of the smaller divisions if accurately represented would be mere lines, no. 12 should be larger than all the others combined.

used as a common name. Many of the Latin botanical names of plants have already come into general use. For example, chrysanthemum, geranium, asparagus, aster, coleus, clematis, cosmos, dahlia, fuchsia, verbena, nasturtium, syringa, zinnia, etc. The other scientific names are no more difficult than these that everybody uses without question. The scientific names are printed in Italics.

Rather than take space to give full descriptions of all the plants, I have tried to give interesting notes on ecology, physiology, use, striking peculiarities, etc. In some places I have pointed out ways in which the plants may be utilized in the schools.

Some of the illustrations used are reproduced from drawings made by pupils in Maryland public schools.

KEY TO THE FAMILIES.

Leaves scale-like or needle-like. *Pinaceae.*
Leaves fan shaped, fruit plum-like. *Ginkoaceae.*
Leaves grass-like, parallel veined.
  Flowers small, greenish. *Gramineae.*
  Flowers large, white. *Liliaceae.*
Leaves not as above.
  Flowers in catkins.
    Ovary superior.
      Perianth 4 to 5 lobed. *Moraceae.*
      Perianth none.
        Many ovules in each cell. *Salicaceae.*
        One ovule in each cell.
          One pistillate flower to each bract. *Myricaceae.*
          More than one to each bract. *Betulaceae.*
    Ovary inferior.
      Fruit a large nut enclosed in a smooth hull. *Juglandaceae.*
      Fruit not as above.
        Ovary 3 to 7-celled. *Fagaceae.*
        Ovary 1 to 2-celled. *Betulaceae.*
  Flowers not in catkins.
    Ovary superior.
      Calyx and corolla similar or one or both absent.

PLATE II.—1, leaves of sweet fern; 2, leaf of Populus grandidentata; 3, red oak leaf; 4, pin oak leaf; 5, scarlet oak leaf; 6, black oak leaf; 7, Spanish oak leaf; 8, scrub oak leaf; 9, water oak leaf; 10, willow oak leaf; 11, shingle oak leaves; 12, black jack leaf; 13, post oak leaf; 14, white oak leaf; 15, swamp oak leaf; 16, swamp white oak leaf; 17, 18 and 19, chestnut oak leaves. All about one-half natural size.

Spiny vines. *Liliaceae.*
Not vines.
Ovary one-celled.
Leaves scaly. *Elaeagnaceae.*
Leaves smooth or hairy.
Stem with milky juice. *Aceraceae* and *Moraceae.*
No milky juice.
Sepals united into a tube. *Thymeleaceae.*
Calyx not tubular.
Flowers yellow. *Lauraceae.*
Flowers green. *Ulmaceae.*
Ovary more than one-celled.
Fruit with one wing. *Oleaceae.*
Fruit two-winged. *Aceraceae.*
Fruit not winged.
Styles 1 or 2. *Oleaceae.*
Styles 3 or 4.
Stamens as many as sepals and alternate with them. *Rhamnaceae.*
Stamens otherwise *Euphorbiaceae.*
Corolla of more than one piece.
Stamens numerous.
Stamens joined to one another. *Malvaceae.*
Stamens free from one another.
Stamens perigynous. *Rosaceae.*
Stamens hypogynous.
Pistils only one.
Leaves compound. *Leguminosae.*
Leaves simple.
Trees. *Tiliaceae.*
Shrubs. *Hypericaceae.*
Pistils more than one.
Leaves opposite.
Flowers brown. *Calycanthaeae.*
Flowers not brown. *Ranunculaceae.*
Leaves alternate.
Fruit over one inch long.

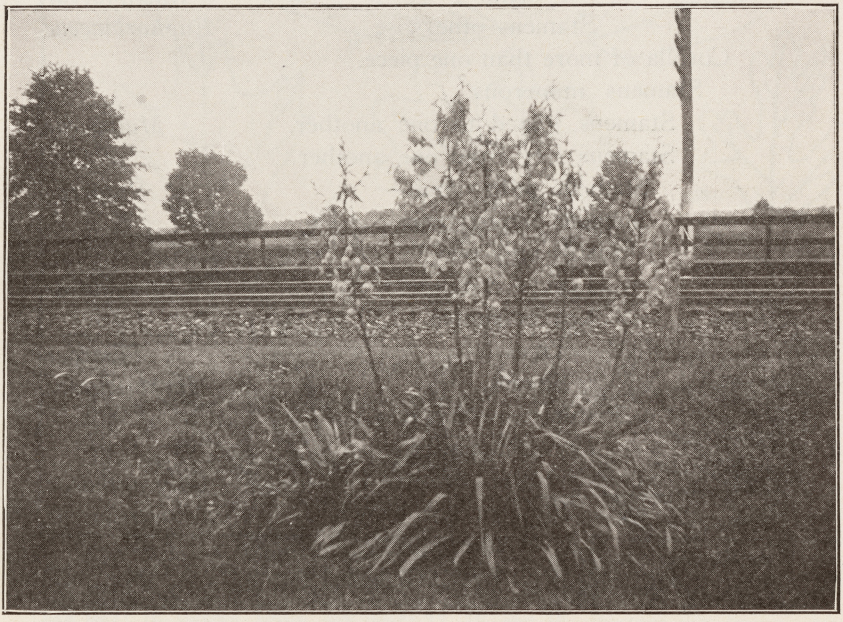


PLATE III.—Red cedars above; yucca below.

Fruit cone-like. *Magnoliaceae.*
Fruit fleshy. *Anonaceae.*
Fruit smaller. *Ranunculaceae.*
Stamens less than 15.
Flowers regular or nearly so.
Vines.
Pistil 1.
Leaves simple, longer than broad. *Celastraceae.*
Leaves compound, or broader than long. *Vitaceae.*
Pistils more than one. *Menispermaceae.*
Shrubs or trees.
Pistils several.
Flowers in heads. *Platanceae.*
Flowers not in heads. *Rutaceae.*
Pistil one.
Style one.
Plants spiny, at least leaves so.
Evergreen trees. *Ilicaceae.*
If evergreen, not tree like.
Ovary one-celled. *Leguminosae.*
Ovary more than one-celled. *Rutaceae.*
Not spiny.
Ovary one-celled. *Leguminosae.*
Ovary more than one-celled.
Many ovules in each cell. *Lythraceae, Ericaceae.*
Cells not more than 3-ovuled.
Ovary surrounded by a fleshy disk.
Leaves punctate. *Rutaceae.*
Leaves not punctate.
Leaves simple.
Fruit red. *Celastraceae.*
Fruit not red. *Rhamnaceae.*
Leaves compound.
Fruit a berry *Sapindaceae.*
Fruit winged. *Simarubaceae.*

PLATE IV.—Black walnut at the right; bald cypress at the left.

Fruit a capsule. *Staphyleaceae.*
Disk not present.
Stamens two (rarely 4). *Oleaceae.*
Stamens four or more.
Flowers minute. *Ilicaceae.*
Flowers showy. *Styracaceae.*
Styles more than one.
Ovary one-celled. *Anacardaceae.*
Ovary 2-celled.
Fruit winged. *Aceraceae.*
Fruit not winged. *Saxifragaceae.*
Ovary 3-celled. *Euphorbiaceae.*
Flowers irregular.
Ovary 1-celled. *Leguminosae.*
Ovary 3-celled. *Hippocastanaceae.*
Corolla of only one piece.
Stamens two to four.
Ovules not more than two in each cell.
Stamens two. *Oleaceae.*
Stamens usually four. *Verbenaceae.*
Ovules many.
Vines. *Bignoniaceae.*
Trees. *Scrophulariaceae.*
Stamens usually 5.
Ovaries two.
Styles not united, *Asclepiadaceae.*
Styles united. *Apocynaceae.*
Ovary only one.
Stamens free from corolla. *Ericaceae.*
Stamens attached to corolla.
Fruit a berry. *Solanaceae.*
Fruit a capsule. *Loganaceae.*
Stamens 6 or more.
Stamens sixteen or more. *Symplocaceae.*
Stamens 6 to 16.
Styles 2 to 6. *Ebenaceae.*
Style one. *Ericaceae* or *Styracaceae.*

PLATE V.—A young chestnut tree in fruit.

Ovary inferior.
  Flowers in involucrate heads. *Compositae.*
  Flowers not in involucrate heads.
    Leaves opposite.
      Parasitic on trees. *Loranthaceae.*
      Not parasitic.
        Corolla none. *Cornaceae.*
        Corolla present.
          Flowers in umbels. *Araliaceae.*
          Flowers not in umbels.
            Leaves with stipules or in whorls. *Rubiaceae.*
            No stipules.
              Stamens 4 to 5.
                Corolla in one piece. *Caprifoliaceae.*
                Corolla of four petals. *Cornaceae.*
              Stamens more than 5. *Saxifragaceae.*
    Leaves alternate.
      Flowers in umbels.
      Not in umbels.
        Corolla none.
          Ovary 1-celled.
            One-ovuled. *Cornaceae.*
            More than one ovule. *Santalaceae.*
          Ovary more than 1-celled. *Hamamelidaceae*
        Corolla present.
          Corolla perigynous.
            Stamens less than five.
          Fruit a berry. *Saxifragaceae.*
          Fruit a capsule. *Hamamelidaceae.*
            Stamens more than five. *Rosaceae.*
          Corolla epigynous.
            Stamens united below. *Styracaceae.*
            Stamens distinct.
              Ovary 1 to 2-celled. *Cornaceae.*
              Ovary 2 to 10-celled. *Ericaceae.*

PLATE VI.—Trunks of beech and oak.

## THE SEED PLANTS (Spermatophyta.)

### 1st. Sub-division. Gymnospermae.

### 1. Family Ginkoaceae.

The ginkgo or maiden-hair tree of Japan is sometimes grown here for ornament. It is a peculiar tree with fan-shaped leaves and has no other plants in the world nearly related to it. The nuts are sometimes eaten but the flesh around them has a very disagreeable odor.

### 2. Family Pinaceae.

This family includes the pines, cedars, firs, spruces, and many similar evergreen trees, but some of them like the larch and bald cypress, drop the leaves at the approach of winter. Several pines grow wild in Maryland. The white pine (*Pinus Strobus*) with five needles in each cluster and long, drooping cones, is found in the western and northern parts of the State. *Pinus Virginiana* is the common scrub pine. It grows almost entirely where land has been cleared; and the ridges of corn rows sixty years old can often still be seen in our pine forests. The leaves are in 2's, as they are also in *Pinus echinata,* the yellow pine, but the latter longer (3-5 inches). *Pinus Taeda,* the loblolly pine, which is called long leaf pine in Maryland, is the short leaf pine farther south, and is the common pine on the Eastern Shore. It has leaves in 3's and six to ten inches long. It furnishes our Virginia pine lumber. Another common three-leafed pine is *Pinus rigida,* the pitch pine. The leaves are three to five inches long and frequently occur in bunches along the trunk.

On the scrub pine one can see several stages in the development of the cones, at one time.

In the western part of the State the hemlock (*Tsuga Canadensis*) is common in the mountains. It has small, flat, evergreen leaves, about half an inch long, and one-sixteenth of an inch wide, the cones are somewhat like pine cones but only an inch or less long. The timber is useful and the bark is used in tanning. It is grown for ornament and is a handsome tree.

Along the swampy rivers of the southern and eastern part of

the Maryland Peninsula the bald cypress (*Taxodium distichum*) which is such a prominent feature of the southern swamps, occurs frequently. Just west of Berlin, Md., is quite a conspicuous cypress swamp easily seen from the train on the B. C. & A. Railroad. The well known cypress wood is quite valuable and durable. It is a large tree, usually growing in water and with a swollen base to the trunk. The leaves resemble the hemlock leaves, but are deciduous. It bears small cones.

*Juniperus Virginiana* is our well known red cedar. The flowers are small and inconspicuous and open in very early spring. The fruit is a small blue berry. There are two forms of leaves; on the rapidly growing branches they are sharp pointed and on the older parts of trees mostly scale-like. The "cedar apples" are galls produced by a fungus, one stage of which causes the apple rust. The cedar wood is very durable. It is used for posts, for lead pencils, and, on account of the aromatic odor, for chests. The cedars of Central Maryland have a slender upright habit, which makes them very ornamental along the fences where they often come up from seeds dropped by birds.

The common cultivated trees of the family are the Norway spruce (*Picea excelsa*), with short, four-sided, needle shaped leaves, and an arbor vitae (*Thuja occidentalis*). The latter has scale-like leaves like the cedar, only broader and less pointed. The little pine-like tree grown by florists and used so commonly at Christmas time is *Araucaria excelsa,* the Norfolk fir or Australian pine.

**2nd Subdivision. Angiospermae.**

A. Monocotyledons.

3. Family Gramineae.

The grasses form one of the largest families of plants. Several hundred are found in Maryland, but no woody ones; but some of the large woody grasses (bamboo or cane) are sometimes grown for ornament.

4. Family Liliaceae.

The lily family includes many tree-like plants, some of which are common in the southwestern United States. Most of the lily-

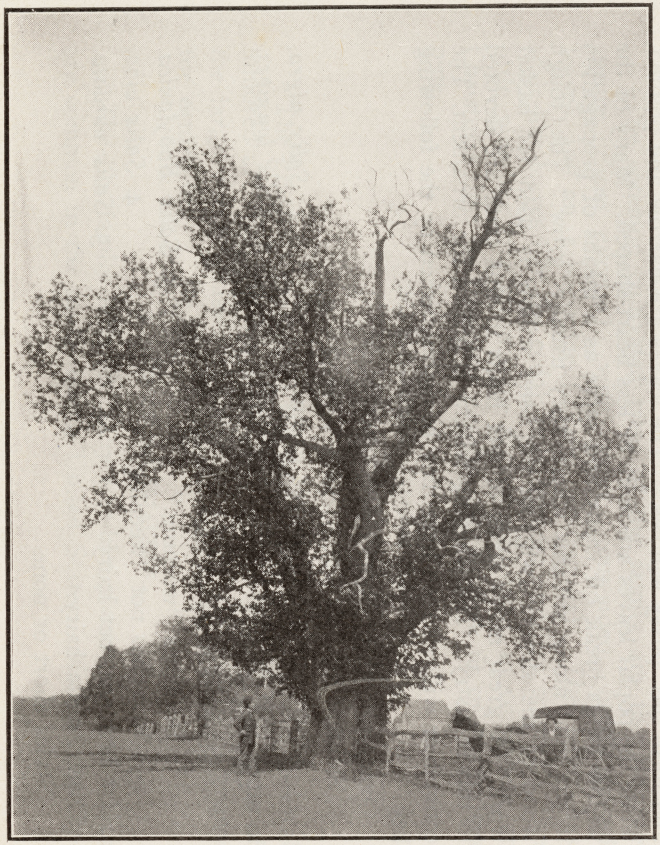
like plants found here are large-flowering herbs. The yucca (*Yucca filamentosa*), often grown for ornament and occasionally found wild along our coast, might be included among the woody plants. It has a grass-like clump of sharp-pointed leaves one or two feet long and one to two inches wide with hair-like fibres along the edge and a large panicle of white flowers. Another woody plant of this family is the green-brier. The commonest species is *Smilax rotundifolia,* but several other kinds of smilax occur here. It has a stiff, green, woody vine, more or less beset with prickles, heart-shaped leaves, small greenish flowers and small black berries.

## B. Dicotyledons.

### 5. Family Salicaceae.

This family is composed of the willows and poplars. A number of species of willow occur in Maryland. They bear short catkins of flowers. In some cases these are covered with soft hairs and form the "pussy willows." The leaves are narrow and pointed, while the poplar leaves are more or less heart-shaped. Many of the willow twigs break off easily and serve as a means of propagation in the mud along streams where they usually grow. The tough wood of the slender twigs of the osier willow is used for basket work. A great many acres of wet lands in this state are devoted to this industry. The weeping willow is grown for ornament. The commoner willows seen here may be distinguished by the following key:

Ovary smooth or short hairy.
  Stamens 3-7.
    Lower surface of leaves green. — 1. *Salix nigra.*
    Lower surface of leaves whitish. — 2. *Salix longipes.*
  Stamens 2.
    Stamens hairy at base.
      Branches "weeping." — 3. *Salix Babylonica.*
      Branches not "weeping." — 4. *Salix alba.*
    Stamens, not hairy. — 5. *Salix cordata.*
Ovary, quite hairy.
  Styles short or none.



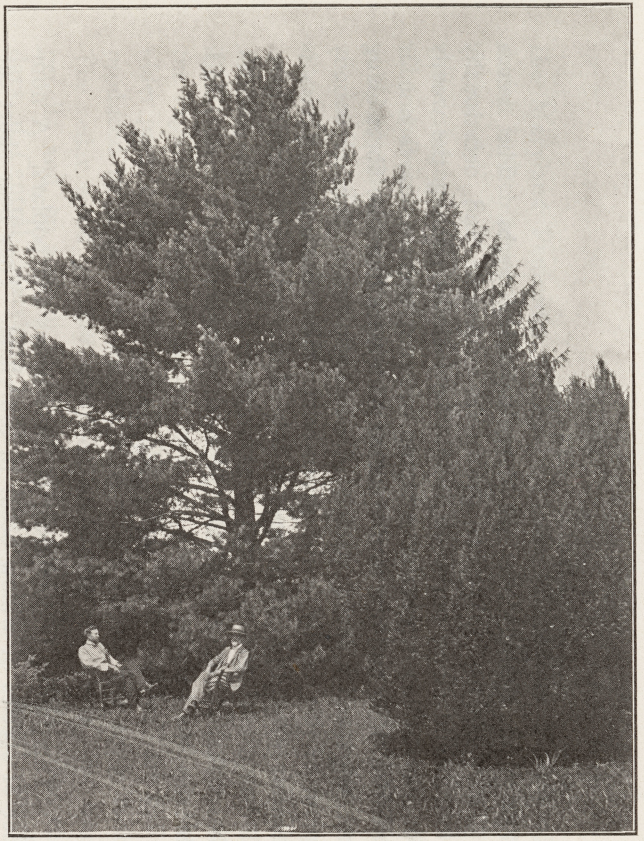


PLATE VII.—At the left a very large chestnut tree; on the right, whitepine in background with Norway spruce showing behind it on the right, in front and on the right a retinospora.

Leaves not densely hairy on the lower surface.
Leaves obovate or oblanceolate, indistinctly toothed. 6. *Salix discolor.*
Leaves oblong, distinctly toothed. 7. *Salix prinoides.*
Leaves densely hairy beneath; small shrubs.
Leaves finely white-woolly beneath.
Leaves 2 to 4 inches long. 8. *Salix humilis.*
Leaves 1 to 2 inches long. 9. *Salix tristis.*
Leaves silvery silky beneath. 10. *Salix sericea.*
Style long. 11. *Salix viminalis.*

No. 1 is the black willow, 3 is the weeping willow, 4 is the white willow, 8 and 9 are the dwarf willows, 10 is the silky willow and 11 is the osier willow.

The poplars are not common wild in Maryland. *Populus grandidentata* is frequent in the rockier localities. *Populus alba* is the commonly grown silver poplar. *Populus nigra Italica* is the Lombardy poplar. *Populus deltoides* is the Carolina poplar, a quick growing tree often planted along streets but soon becoming worthless. *Populus heterophylla* may be found wild in our swamps. Some other aspens from Europe are also cultivated. The silver poplar makes a pretty tree but suckers very freely from the roots, often thus making a dense thicket of young ones around an old tree. The seeds of the poplars have a cottony attachment by which they are carried on the wind, whence the name cottonwood. These poplars may be distinguished as follows:

Terminal buds large and gummy.
Leaves as long as broad. *Populus deltoides.*
Leaves broader than long. *Populus nigra.*
Terminal buds small, not gummy, usually hairy.
Petioles round. *Populus heterophylla.*
Petioles flattened. *Populus grandidentata.*
Mature leaves not white-woolly beneath.
Mature leaves white-woolly beneath. *Populus alba.*

## 6. Family Myricaceae.

The wax myrtle (*Myrica cerifera*) is a low shrub with small white wax-coated berries, found in our wet, sandy lands, particu-

PLATE VIII.—Colorado blue spruce, and weeping willow above; below osage orange hedge with Carolina poplar in background.

larly near the coast. The wax from the berries was formerly an important article of commerce. Two other shrubs of this genus may occasionally be found. Another small shrub of this family, found in our dry sandy woods is the sweet fern (*Comptonia peregrina*). It can be recognized by the leaf outline shown in Plate II.

## 7. Family Juglandaceae.

In this family belong our walnuts and hickories. The black walnut is *Juglans nigra*. The white walnut or butternut is *Juglans cinerea*, and it is distinguished from *Juglans nigra* by the oblong fruit. The English or Persian walnut (*Juglans regia*) frequently grown here, is distinguished by the almost entire margin of the leaflets. The Black Walnut is one of our valuable ornamental woods. One tree near South River is 18 feet in circumference and is valued at $400.00.

Several hickories occur in Maryland. They are distinguished from the walnuts by the husk which surrounds the nut separating into segments. In spring, the developing leaf buds make an interesting study. The wood is very hard and tough and is used in basket work, cooperage, etc. The pecan of the south is one of our most valuable nuts. It is occasionally seen growing in Maryland. The hickories which may be met with here are not readily distinguished in the spring until one has become familiar with their bark and bud characters. The following key may be helpful:

Scales of leaf buds not overlapping.

Leaflets 11 to 5. — 1. *Hicoria Pecan.*

Leaflets 7 to 9. — 2. *Hicoria minima.*

Scales of leaf buds overlapping.

Young leaves and twigs finely hairy.

Bark shaggy. — 3. *Hicoria ovata.*

Bark close. — 4. *Hicoria alba.*

Young leaves and twigs almost smooth or slightly hairy.

Bark shaggy, at least on old trees.

Leaflets 3-5. — 5. *Hicoria Carolinae-septentionalis.*

Leaflets 5-7. — 6. *Hicoria microcarpa.*

Bark close. — 7. *Hicoria glabra.*

No. 1 is the pecan; 2 is the bitternut; 3, the common shell-bark hickory; 5, the Southern shellbark; 4 is white-heart hickory or mocker nut; 7 is the pig-nut.

## 8. Family Betulaceae.

To this family belong the birch, alder, hazelnut, horn-beam, etc. The common alder shrub along our streams is one of the first to bloom in the spring; the unopened catkins hanging on all winter. It is often attacked by a parasitic fungus that distorts the pistillate cones. Some of the birches are most graceful ornamental trees, and the white birch of Europe is much grown in parks. The bark of many birches, as our common river birch, separates in thin sheets. This bark was sometimes used in early days instead of paper. Canoes are also made of it in the Northern woods. The sweet birch furnishes an aromatic oil used for oil of wintergreen. The peculiar odor of Russia leather comes from the white birch oil used in preparing it. The use of the hazel nut is well known. The species found here are distinguished as follows.

Each bract of the staminate catkin bearing but one flower.
  Fruit in a loose cone or hop-like cluster. 1. *Ostrya Virginiana.*
  Fruit a large nut, with husk-like leaves at its base.
    Nut oblong. 2. *Corylus Avellana.*
    Nut nearly globular. 3. *Corylus Americana.*
  Fruit with a leaf-like toothed wing to each seed.
    4. *Carpinus Caroliniana.*
Each bract of the staminate catkin having 3-6 flowers.
  Each flower with two stamens; a 3-lobed bract below each seed.
    Leaves almost as broad as long.
      Bark light reddish brown. 5. *Betula nigra.*
      Bark chalky white. 6. *Betula alba.*
    Leaves about twice as long as broad.
      Bark aromatic, upper surface of leaves shining.
        7. *Betula lenta.*
      Scarcely aromatic, leaves dull above. 8. *Betula lutea.*
  Each flower with four stamens, bracts not 3-lobed.
    Leaves dull on the upper surface.

Leaf margin finely serrate. 9. *Alnus rugosa.*
Leaf margin dentate. 10. *Alnus glutinosa.*
Leaves bright green and shining above. 11. *Alnus maritima.*

No. 1 is hop-hornbeam, on dry hillsides, west; 2, European hazelnut or filbert, sometimes cultivated in Maryland; 3, American hazelnut, common in edge of dry woods; 4, hornbeam or ironwood, a small beech-like tree with smooth, ridged trunk. (The European hornbeam, *Carpinus Betulus,* is sometimes grown in our parks). 5, the common red or river birch found along our streams; 6, white birch of the Old World, cultivated in parks; 7, sweet birch, and, 8, yellow birch are found in the more mountainous parts of the State; 9, is the common alder along our streams; 10, is the European alder sometimes cultivated here; 11 as a marsh alder found near the coast.

## 9. Family Fagaceae.

The oak, chestnut and beech belong to this family. The oak is one of the most important and well-known trees of the Northern Hemisphere. There are a great many species, 75 or more in the United States and as many as twenty or more forms may be expected in Maryland. Some of them appear to be hybrids. The mature leaves and acorns are needed in determining with accuracy the different kinds. They furnish an excellent group for study in distinguishing different forms which closely resemble each other and also for studying variations in leaves on the same tree. The various kinds of galls produced by insects on the leaves and twigs of oaks give an interesting study. The variation in the edible quality of the acorns and their value as food for hogs has doubtless been noted by most of people familiar with the woods. The outlines of oak leaves in Plate II, will serve to distinguish our common species with the aid of the following notes: The oaks of the black oak type have a short bristle at the tip of each lobe of the leaf, which is absent in those of the white oak type. The leaves of the Spanish oak, scrub oak, shingle oak, swamp oak, swamp white oak, as well as the chestnut oaks, to some extent, are finely white or brownish woolly on the under side. The post oak and black jack oak are somewhat rough hairy on the leaves. The other oak leaves are not hairy ex-

PLATE IX.—On the left four English elms; on the right two sweet gum trees of different habit; 3 red maples in background; Japanese honeysuckle on the porch at lower right hand.

cept when young. The red oak has a large dull leaf, the pin oak has a small shining leaf. These two have a shallow acorn cup, while the scarlet and black oaks have a cup half as long as the acorn. In the plate showing oak leaves, 3 is the red oak (*Quercus rubra*), 4 is pin oak (*Quercus palustris*), 5 is scarlet oak (*Quercus coccinea*), 6 is black oak (*Quercus velutina*), 7 is Spanish oak (*Quercus digitata*), 8 is scrub oak (*Quercus nana*), 10 is willow oak (*Quercus phellos*), 11 is shingle oak (*Quercus imbricaria*), 12 is black jack (*Quercus Marylandica*), 13 is post oak (*Quercus minor*), 14 is white oak (*Quercus alba*), 15 is swamp oak (*Quercus lyrata*), 16 is swamp white oak (*Quercus platanoides*), 17, 18 and 19 are different kinds of chestnut oak (*Quercus michauxii, Quercus acuminata* and *Quercus prinos*).

The chestnuts are distinguished by the spiny burr enclosing the nuts. Two are wild here, the common chestnut (*Castanea Americana*), one of our largest trees, with large glabrous leaves and nuts less than an inch wide, and the chinquapin (*Castanea pumila*), a shrub with small, nearly spherical nuts and leaves finely woolly on the underside. Two foreign chestnut species are cultivated in Maryland. Both have large nuts (over one inch wide). They are the Japanese chestnut (*Castanea crenata*) and the European chestnut (*Castanea sativa*). The latter has the leaves more rounded at the base. The chestnut wood is valuable on account of its durability. The nuts form important articles of food in parts of Europe and Japan.

The beech is distinguished readily by the long, pointed winter buds, the smooth, gray bark and the sharply triangular nuts in an almost spiny cup. The American beech is *Fagus Americana*, the European beech is *Fagus sylvatica*. The former is distinguished by the more pointed leaf. A common variety of the European beech grown in our parks is the purple beech, in which the leaves have a beautiful metallic purplish color, at least when young. The beech nuts are edible. The smooth bark of the tree is well known to boys as a desirable place to carve names.

### 10. Family Ulmaceae.

The elms and hackberries are the principal members of this

PLATE X.—1, syringa; 2, flowering dogwood; both from paintings by Miss Maude Symons, Easton High School; 3, Azalea nudiflora from colored drawing by Eva May Lindell, Pierson's Grove School, Cecil Co.; 4, leaf of moonseed; 5, leaf of green-brier; 6, hackberry leaf; 7, flower of papaw.

family. Two elms are wild here and several in cultivation. The common American elm (*Ulmus Americana*), one of our finest trees, is distinguished from the others by having the flowers borne on slender, drooping pedicels. The slippery elm (*Ulmus fulva*) is distinguished from the European elms by its rough, whitish twigs and in particular by the stiff, brown hairs on the buds. Its inner bark is quite mucilaginous and is used in medicine. The two commonest elms in cultivation, besides the American elm, are the Scotch elm (*Ulmus scabra*) and the English elm (*Ulmus campestris.*) The latter usually has smooth leaves, short horizontal branches and an oblong head; it suckers freely. The former has rougher leaves, a more rounded head and does not produce suckers. The small elms with flat, wide-spreading top and more or less drooping branches, often grown for ornament, are the Camperdown elm, a variety of *Ulmus scabra.*

Of the hackberries *Celtis occidentalis* is the common one met with in our woods. The fruit is a drupe, somewhat like a very small cherry, while the elm fruit is a small winged nutlet.

## 11. Family Moraceae.

To this family belong the mulberries, osage orange, hop and hemp, as well as the common fig, the India rubber fig and many similar tropical trees, such as the banyan; the bread fruit, the cow-tree of Venezuela, the poison upas tree of Java and the Mexican rubber tree also belong to the *Moraceae.* Nearly all of them have a milky sap.

The trees of this family common in Maryland are the following:

Leaves thin, deciduous.
- Pistillate flowers in spikes.
  - Leaves hairy below and rough above. 1. *Morus rubra.*
  - Leaves smooth. 2. *Morus alba.*
- Pistillate flowers in heads.
  - Leaves smooth, entire, branches spiny. 3. *Toxylon pomiferum.*
  - Leaves hairy, variously lobed. 4. *Broussonetia papyrifera.*
- Flowers borne inside the receptacle (fig) 5. *Ficus carica.*

Leaves thick; evergreen houseplant. 5. *Ficus elastica.*

No. 1 is the red mulberry and is native here. It has large red mulberries more agreeable in flavor than the white or Russian mulberry (2). The leaves of the latter are one of the principal silk worm foods. 3 is the Osage orange, often used for a hedge plant. It is undesirable, because it occupies too much room and furnishes such opportunity for the spread of San Jose scale. The large multiple fruits, somewhat orange-like in shape and size resemble very much the bread fruit. It is native in the Central Mississippi valley. The wood is very durable. 4 is the paper mulberry. It is wild in many places in Southern and Eastern Maryland, but was planted here from Japan where the bark is used in making paper. It resembles the mulberry very much. No. 5 is the common fig, famous as a fruit from very ancient times. The dried fruit is an important article of commerce from Oriental countries, particularly from Smyrna. Since the insect that assists in fruit production has been imported, just as fine figs can be grown in the fig producing regions of the United States. Home-grown figs are frequently seen in Maryland markets, but they have to have some protection over winter in this State. 6 is the India-rubber fig, a common house plant and one of the best for our dry rooms. The leaves are good subjects for study with the microscope. The large cells on the upper side, which contain aggregations of calcium carbonate called cystoliths, are of interest.

### 12. Family Loranthaceae.

This is the mistletoe family. The mistletoe frequently seen in the warmer parts of Maryland on the gum trees is a small shrub growing on the branches of the host tree. It is only a partial parasite, as its leaves contain chlorophyll, and it is thus able to utilize the carbon of the air like other green plants. The decorative and sentimental uses are too well known to need any comment. Our mistletoe is *Phoradendron flavescens.* The European mistletoe, sacred with the ancient Druids, when found on oak, is a different plant (*Viscum album.*)

### 13. Family Ranunculaceae.

Most of this family are herbs, such as the buttercup, larkspur, columbine, etc. Some of them are small shrubs, for example, the

shrubby yellow root (*Xanthorrhiza apiifolia*); some species of clematis are woody vines. *Clematis Virginiana* is the wild virgin's bower, a frequent woody vine, with clusters of white flowers in summer. *Clematis paniculata* is a somewhat similar cultivated vine. In late summer, when it is densely covered with white flowers, it is one of our most beautiful vines. Several large flowered species of clematis are cultivated.

## 14. Family Lardizabalaceae.

*Akabia quinata* is an interesting ornamental vine of this family. The leaves consist of five small, palmately arranged leaflets. The flowers have three dark purplish petals and five thick styles.

## 15. Family Berberidaceae.

The barberry family contains several shrubs. The common barberry (*Barberis vulgaris*) is sometimes seen here. It is a somewhat spiny shrub, with the flowers in racemes. *Berberis Thunbergii* is, perhaps the best ornamental shrub for all the year round. It is a low, rounded-headed shrub, the flowers borne singly. The red berries hang on all winter. The mahonia (*Berberis aquifolium*), a shrub of the Northwestern United States, is sometimes cultivated. It differs in having compound leaves, which are somewhat like holly leaves. One stage of the wheat rust lives on the common barberry. The barberry shows well the transition from leaves to spines.

## 16. Family Menispermaceae.

The moonseed family contains many tropical woody vines. Some of these are quite poisonous. The only one here is the moonseed (*Menispermum canadense*). It is a partially woody vine, with somewhat grape-like berries. The root is of a light yellow color and has been used in making bitters under the name of sarsaparilla. The true sarsaparilla is a tropical American smilax. The name, moonseed, comes from the shape of the seed.

## 17. Family Magnoliaceae.

The magnolia family contains several of our most important trees, a number of magnolias, the tulip tree (No. 1) and the star anise. Those to be seen in Maryland are the following:

Leaves truncate at the apex. 1. *Liriodendron tulipiferum.*
Leaves more or less pointed.
Flowers early, before the leaves. *Japanese magnolias.*
Petals white, nine or more. 2. *Magnolia stellata.*
Petals, 6 to 9.
Flowers white. 3. *Magnolia Yulan.*
Flowers purplish. 4. *Magnolia obovata.*
Flowering after leaves appear.
Leaves deciduous.
Leaves not acute at base. 5. *Magnolia acuminata.*
Leaves acute at base. 6. *Magnolia tripetala.*
Some of the leaves remaining green over winter.
Under side of leaves white. 7. *Magnolia Virginiana.*
Under side of leaves rusty. 8. *Magnolia grandiflora.*

No. 1 is the tulip tree, also well known as yellow poplar and tulip poplar. It furnishes our poplar lumber and is one of the largest and finest trees of the eastern United States, being sometimes as much as twelve feet in diameter. The straight, gray trunks of the younger trees are conspicuous in our moist woods. 2, 3 and 4 are shrubs producing very large flowers in early spring. They are natives of East Asia. No. 5 is the cucumber tree of our mountain woods, so-called from the form of the fruit. No. 6 is the umbrella tree or elk wood, also in our mountain regions. No. 7 is the sweet bay and is a common small tree of our wooded swamps. The white flowers are very fragrant. Most of the leaves fall in the winter here, but it is more evergreen farther south. No. 8 is the common evergreen magnolia of the South. It is hardy and grown for ornament in the warmer parts of Maryland. The essential oil of some of the magnolia flowers is used in perfumery.

## 18. Family Calycanthaceae.

Two or three shrubs of this family, with large strawberry-scented flowers are cultivated for ornament. They are known as

strawberry shrub or *Calycanthus*. One (*Butneria fertilis*) which is not sweet scented, may be found in Western Maryland.

### 19. Family Anonaceae.

The custard-apple family contains a number of delicious tropical fruits, perfumes and spices. The nutmeg is from a closely related tropical tree. The papaw (*Asimina triloba*) is the only representative in this part of the world. It is a small tree, with three-parted, brown-colored flowers and large, richly flavored fruits containing large, brown seeds. The fruit is liked by many and is worthy of improvement and cultivation. The true papaw of the West Indies belongs to a very different family.

### 20. Family Lauraceae.

The laurel family is named from the European laurel, *Laurus noblis,* also called sweet bay. It is the closely trimmed, round-headed evergreen tree often seen in tubs in front of buildings in the city. From it was made the laurel wreaths spoken of in ancient history. The wild laurel of Maryland is a very different shrub, belonging to the heath family. Most of the plants of this family contain aromatic oils. The camphor, cinnamon and cassia belong here, as does the alligator pear of tropical America, frequently seen in our markets, and an excellent food fruit. The family is represented in our flora by the sassafras (*Sassafras sassafras*) and the spice bush (*Benzoin benzoin*). The fruit of the sassafras is blue and the leaves are variously lobed. It is a common tree, almost a weed. The bark of the root is sometimes used for tea, and was, in early days, an important article of commerce. The oil is used in medicine and flavoring. The spice bush has red fruit and entire leaves. It is found along streams, especially in rocky situations. It is used in medicine.